

# What do shrimper trawlers fish in North West Africa? The issue of discards.



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## Context

In compliance with the Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy (Data Collection Framework, DCF), Spain performs a monitoring program through scientific observations onboard the Spanish shrimper fishery operating in Mauritanian waters.

The Spanish shrimper trawlers fishing off Mauritanian waters usually alternate the use of two different gears, depending on the target species. Outriggers are used to fish *Parapenaeus longirostris* and *Penaeus notialis*, usually during daylight hauls and the classic bottom otter trawl with trawl doors (baka type) is employed for a deeper fishery, especially targeting *Aristeus varidens*. These last deep hauls are usually made at night. This fishery is characterized by capturing a great diversity of species: tree target species, other retained species and a significant amount of species that end up back in the sea, discards.

Observations onboard

4 observers 3 vessels 6 fishing trips 234 fishing days  
 Period of observations: From March 2016 to March 2017.  
 Discard fraction was visually estimated in every 1333 single haul  
 In 158 randomly selected fishing trawls discards were sampled (weight and number by species and length for target species and other selected species).

## Objectives

- ✓ Study the discarded fraction of the catch
  - Specific composition
  - Abundance
  - Frequency
  - Distribution
- ✓ Analyze the discards of each type of fishing haul
  - Coastal
  - Intermediate
  - Deep

Among other objectives the ones related to discards are:

## Results

Observations onboard shrimper trawlers off Mauritanian waters, period from March 2016 to March 2017  
 3 fishing trawl strategies, at different depths and related with the tree target species (*P. longirostris*, *P. notialis* and *A. varidens*).

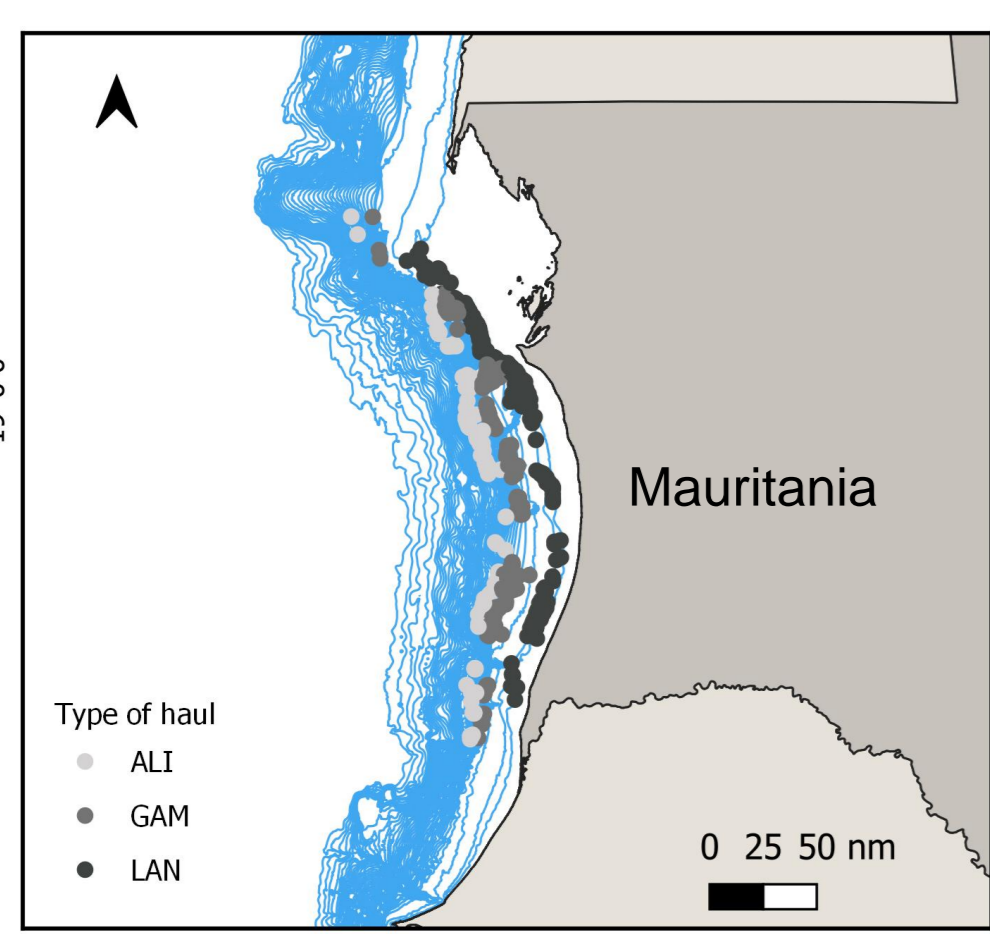


Figure 1. Spatial distribution of the tree type of fishing hauls.

Table 1. Target species, depth range, trawl duration, number of hauls, percentage of hauls, average yield and percentage of discards for every type of fishing haul.

TYPE OF FISHING HAUL	TARGET SPECIES	DEPTH RANGE (m)	TRAWL DURATION	Nº HAULS	% HAULS	AVERAGE YIELD	% DISCARDS
COASTAL	<i>Penaeus notialis</i>	12-58	2:33	571	43	21,2	78
INTERMEDIATE	<i>Parapenaeus longirostris</i>	155-329	2:14	588	44	50,9	70
DEEP	<i>Aristeus varidens</i>	414-1015	4:27	174	23	11,8	70

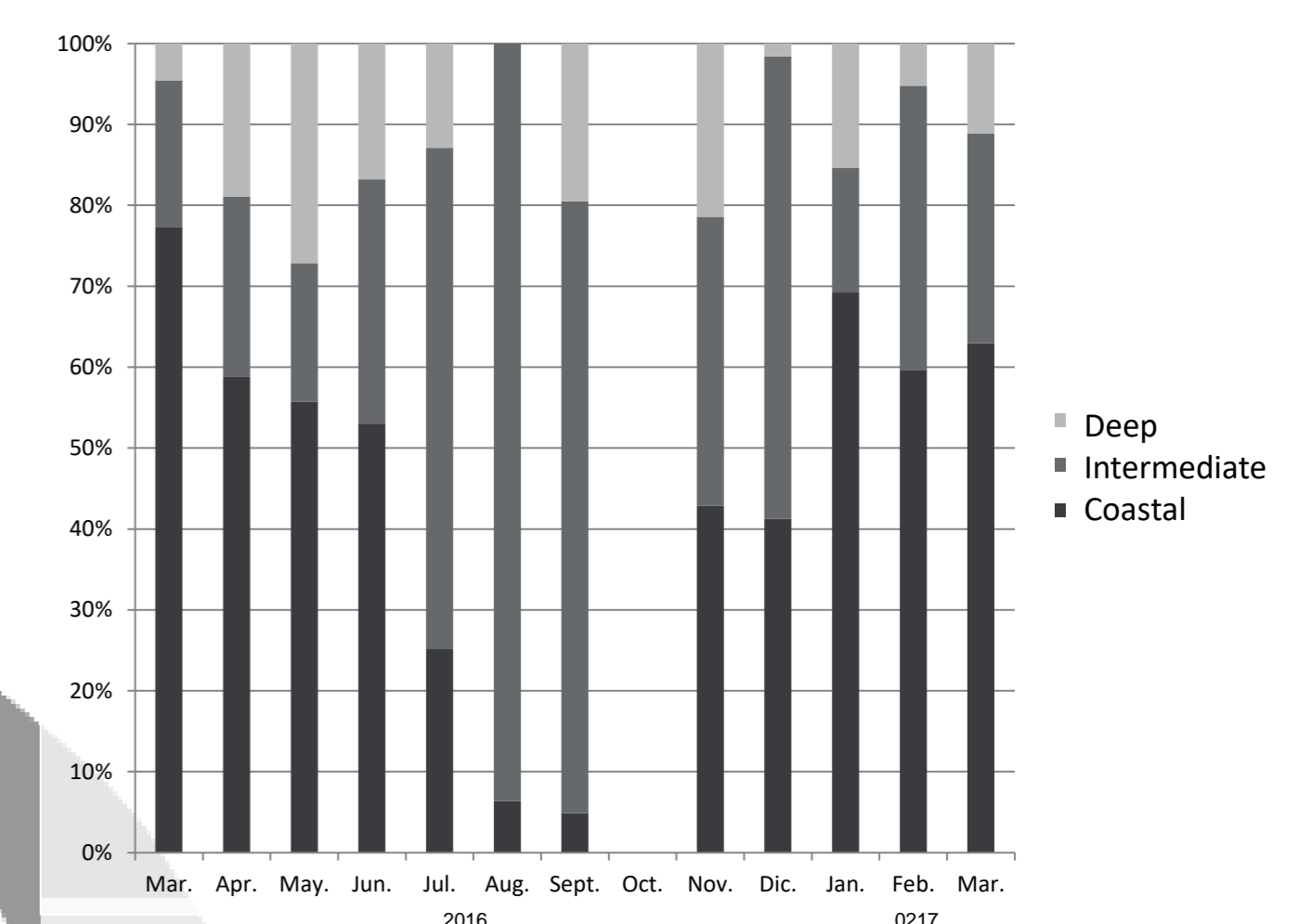


Figure 2. Monthly proportion, in percentage, of every type of fishing haul (period March 2016-March 2017).

377 species discarded

266 fish  
 69 crustaceans  
 16 cephalopods  
 26 other invertebrates species

Mean yield

Discards 137 kg/h  
*Parapenaeus longirostris* 50.9 kg/h  
*Penaeus notialis* 21.2 kg/h  
*Aristeus varidens* 11.8 kg/h

Coastal fishing hauls produced the biggest proportions of discards, about the 78% of the total catches, while discards in intermediate and deep waters fishing hauls were around 70%.

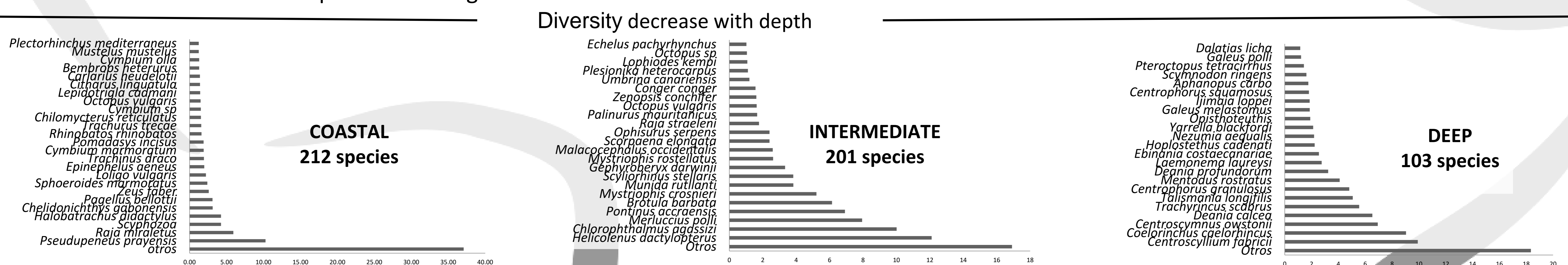


Figure 3. Specific composition of discards observed in the tree types of haul, period of observations March 2016- March 2017..

Discard diversity decrease with depth, from around 212 species in coastal fishing hauls to 103 species in deep hauls, intermediate hauls account about 201 species.

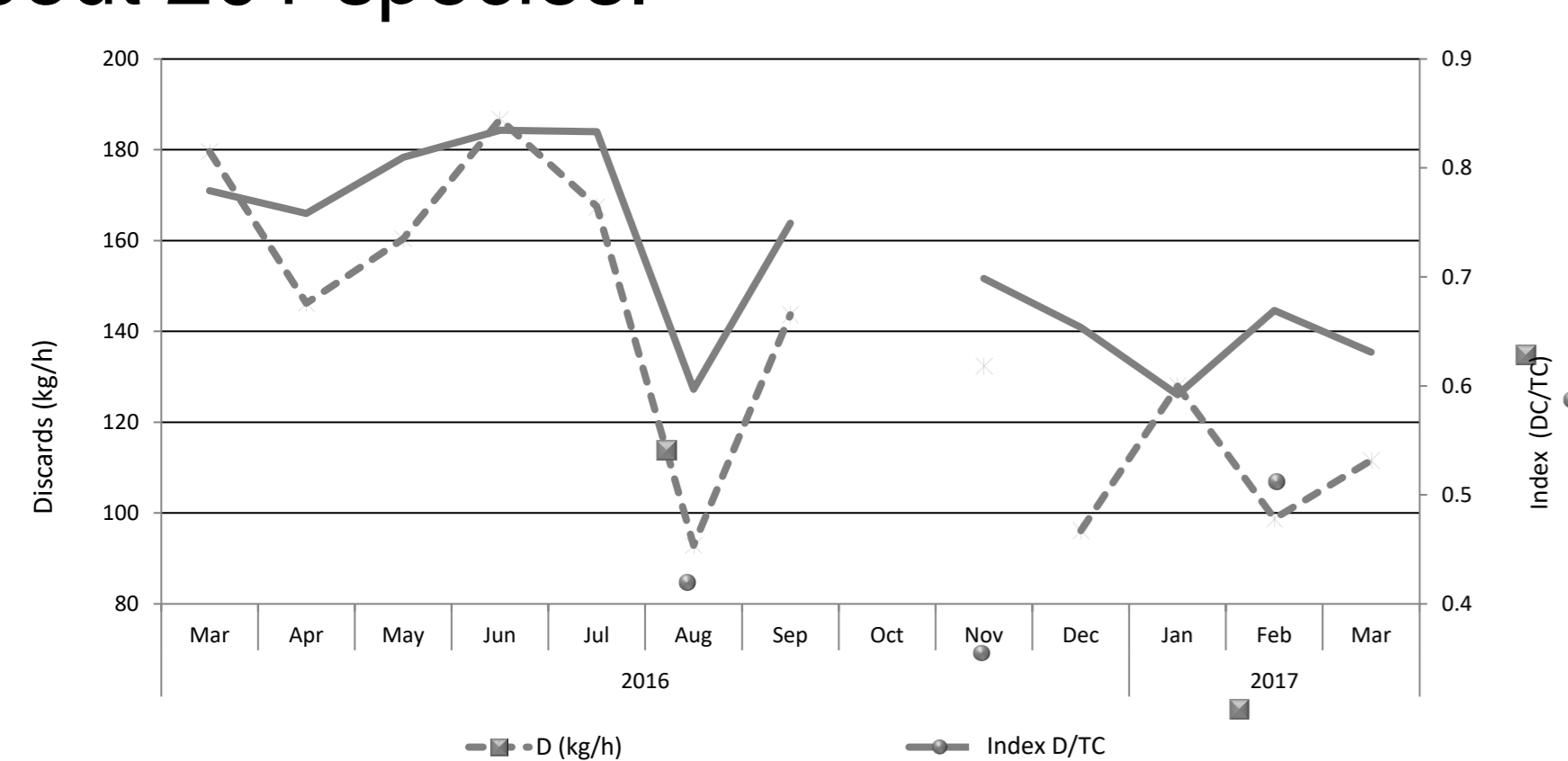


Figure 4. Monthly evolution of discarded catch per hour (D/h) and discard index (discarded catch/total catch DC/TC).

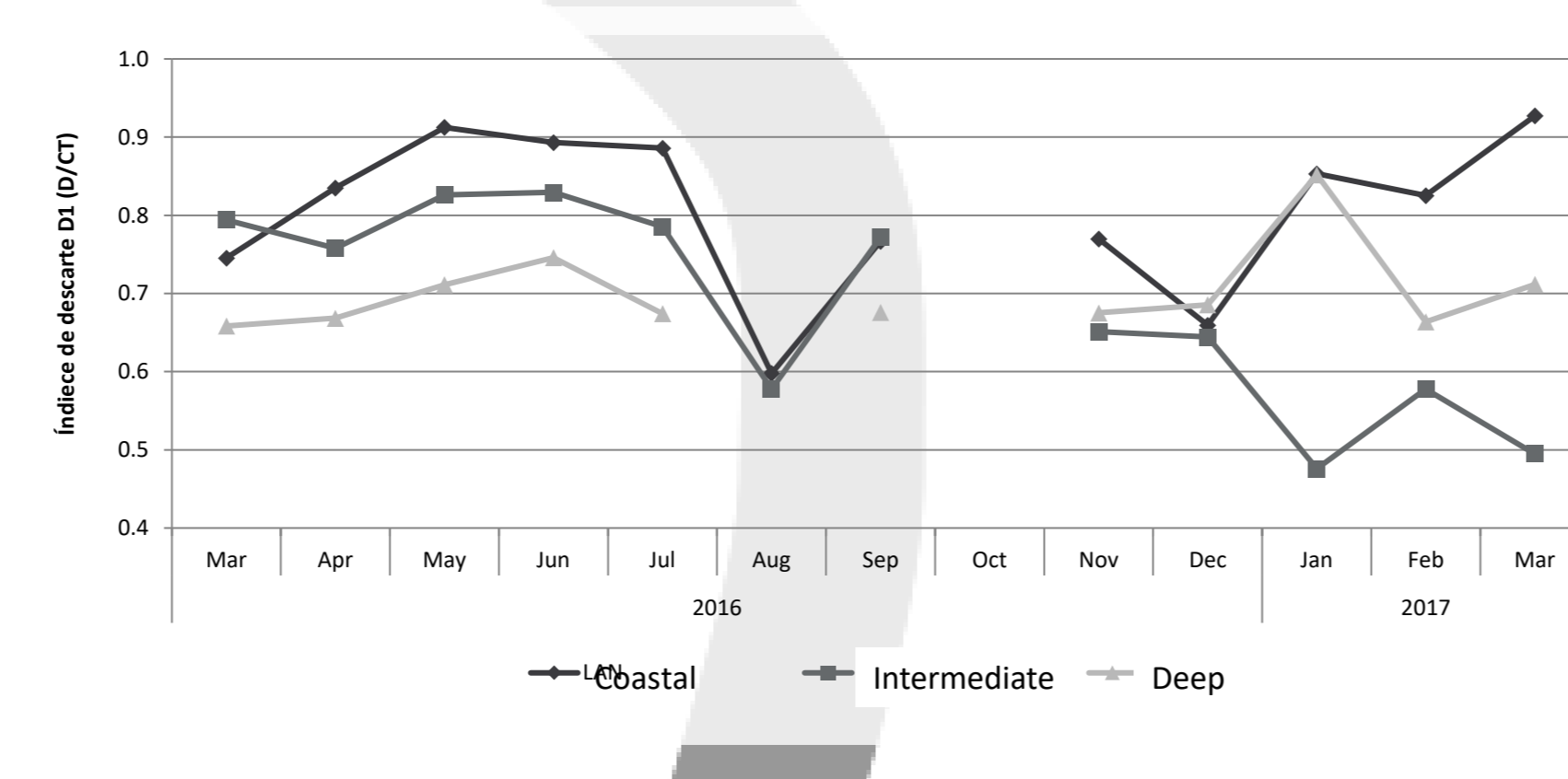


Figure 5. Monthly evolution of discard yield (D/h) for each type of haul (coastal, intermediate and deep).

Monthly differences are observed in the estimated discard values, with an upward trend from March 2016 to June-July, when the maximum discard occurred (0.83), followed by a minimum in August (0.60) and a new rebound in September (0.75). These trends are quite similar to those observed for each type of fishing haul.

The distribution of the total catch of the Spanish shrimper trawlers fishing off Mauritanian waters for 2016 was estimated:

Total Catch 10.500 t  
 • 948 t retained  
 • 9500 t discards

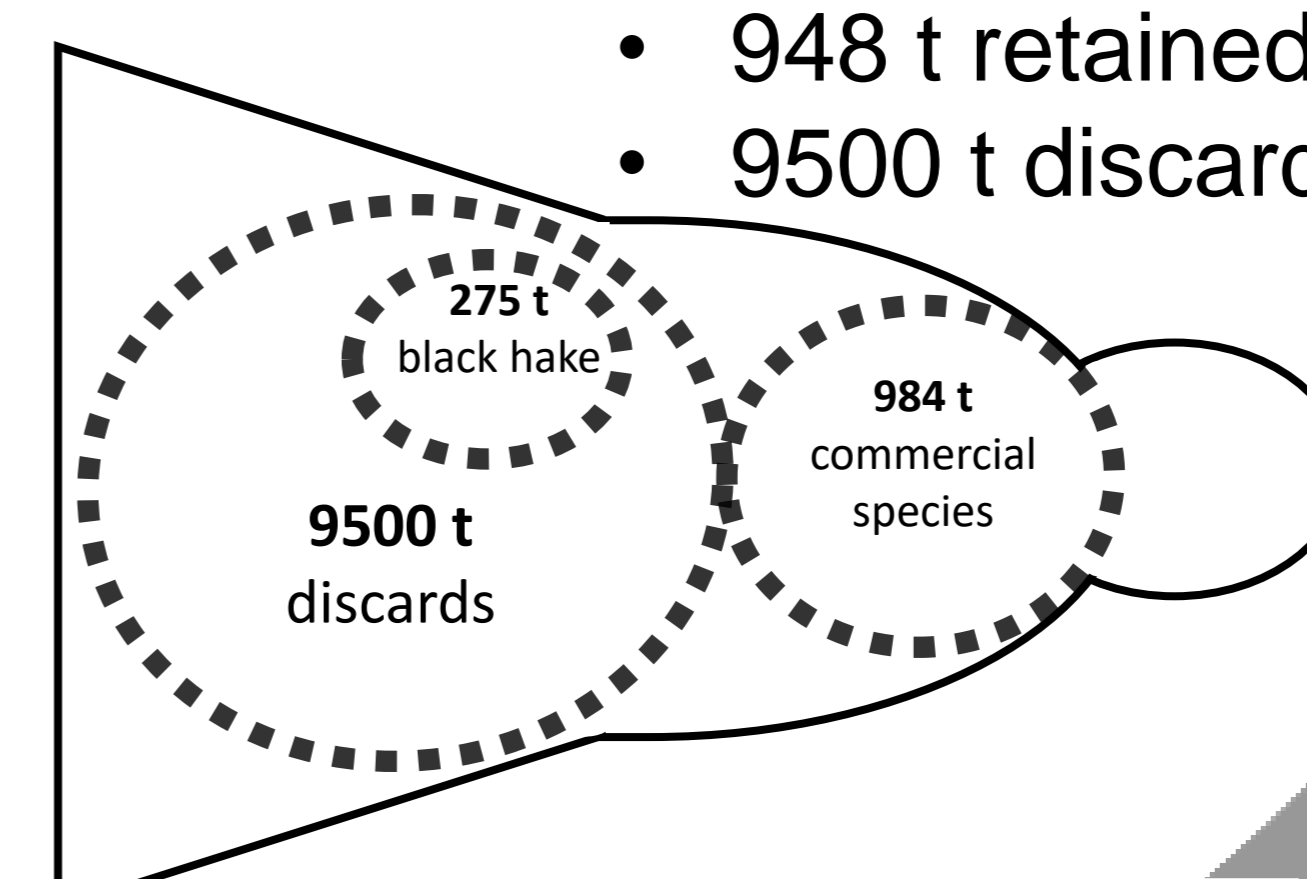


Figure 6. Catch estimation for the shrimper trawlers in 2016 (total catch, retained catch and discards (special attention to the discards of black hake)).

Among the species discarded there are some that are target species for other fleet, this is the case of black hake, it is estimated that shrimper trawlers discarded 275 t of this species in 2016.

## Conclusions

The implementation of this Observers Onboard Programmes is a DCF requirement . Among other relevant fishery and biological information, it is the only way to obtain information about discards.

The study of the spatial distribution and the seasonal and inter-annual variations of discards, during long temporal series, provides us valuable information to improve the knowledge of:

- The fishing strategies
- The effect of the fishery on the trophic webs
- The effects on the whole ecosystem

It is also important to better estimate the population or stocks of commercial species for assessment purposes.

## References

Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008.